

XXXII.—Notes on the Tabanidæ of the Australian Region.
By GERTRUDE RICARDO.

[Concluded from p. 40.]

THE genera *Silvius*, *Chrysops*, and *Ectenopsis* are included in this paper, with four new genera, all in the Pangoninæ division of the Tabanidæ, and, with the last group of the Tabaninæ, comprising the subgenus *Therioplectes*, added, concludes the work on the family of Tabanidæ.

More material to add to the Brit. Mus. Coll. will be most welcome, and will be gladly identified by the writer of this paper.

PANGONINÆ.

SILVIUS, Meigen.

Syst. Beschreib. iii. p. 27 (1820).

See Ricardo, Ann. & Mag. Nat. Hist. (7) viii. p. 296 (1901).

The species of *Silvius* as yet recorded from Australia are:—

Silvius marginatus, ♀, Walker.

? *Silvius nitescens*, ♂, Walker.

Silvius silvester, Bergroth.

Silvius marsoni, Summers.

Silvius alcocki, Summers.

Silvius strangmanni, Summers.

Silvius lunulatus, Bigot, described by him under *Tabanus*.

Silvius lurida, Walker, described by him under *Pangonia*.

To these four new species are now added.

All the old species are represented in the Brit. Mus. Coll. except Bergroth's species, of which I have no knowledge; it is described as from Central Queensland, a small blackish species with two black-brown discal spots on the abdomen.

On the species from New Guinea, see Ricardo, 'Résultats Expéd. Sci. Néerlandaise, Nouvelle Guinée,' vol. ix., Zoologie, livr. 3, p. 387 (1913).

Silvius lunulatus, ♀, Bigot, Mém. Soc. Zool. de France, v. p. 688 (1892) [*Tabanus*].

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off, it is difficult to decide; but ocelli and small spines on the tibiae are present.

It is a brownish-coloured small fly, with paler segmentations on the abdomen, covered with white hairs, and the thorax has grey tomentose stripes. The forehead is parallel, with a small reddish-brown frontal callus, reaching the eyes, which are bare. Legs reddish yellow. Wings clear.

Length 11 mm.

Silvius lurida, ♀, Walker, List Dipt. i. p. 140 (1848) [*Pangonia*]; Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 121 (1900).

Type (female) from Port Stephen, New South Wales, with a note, "Very troublesome to man and cattle," and another female from Swan River, W. Australia.

This type and the other female are both in bad condition, but as they clearly possess ocelli and spines on the hind tibiae, they do not belong to any genera of the Tabaninae, and the antennae having only five divisions on the third joint precludes them from belonging to the genus *Pangonia*. The shape of the palpi, which are long and slender, with truncated tips as in *Silvius marsoni* and other species of *Silvius* from Australia, leads me to place them in this genus.

A rather large species compared with others of the genus. *Face* reddish, covered with grey tomentum. *Beard* white. *Palpi* long and slender, cylindrical, slightly dilated, and concave at base, with the tips truncated, yellowish in colour, about a third of the length of proboscis. *Antennae* reddish, the third blackish; the first joint short, with some black pubescence, the second very small, cup-shaped, the third with the first division large and broad, the last four joints very small. *Subcallus* shining red, with traces of grey tomentum, protuberant and large. *Forehead* parallel, hardly more than three times as long as it is broad, with a large, broad, shining reddish stripe as frontal callus, ending posteriorly in a short point. *Eyes* bare. *Ocelli* distinct. *Thorax* appears reddish, with three dark stripes, covered with grey tomentum; it is probably very much denuded. *Scutellum* reddish. *Abdomen* reddish yellow, with traces of grey tomentum on the segmentations and on dorsum of apical segments; it is also much denuded. *Legs* reddish, the tarsi dusky. *Wings* clear, veins and stigma yellowish, the posterior cells all widely open, no appendix.

The above description is of the type only; the other female is probably identical, but the forehead seems narrower

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and the subcallus and frontal callus are darker in colour; the spines on hind tibiæ are present, though small; in the type the hind legs are destroyed.

Length of type $14\frac{1}{2}$ mm.; other female 13, and its proboscis 3 mm.

Silvius doddi. ♀, sp. n.

Type (♀, from Mr. Wainwright's Collection) from Kuranda, Queensland, Sept. 1910 (*F. P. Dodd*), and another. Two females in German Ent. Museum Collection from Herberton, 3700 ft. (*Dodd*), and Cairns, N. Queensland; also a male from Herberton.

A small yellowish-brown species; antennæ and legs yellowish. Wings tinged yellowish brown.

Length $9\frac{1}{2}$ mm., others 8 mm.

Face brown, with some paler tomentum and brown hairs on cheeks; furrows on each side of face deep, beard brownish. *Palpi* slender, the same width throughout, curved, yellowish, with dense but short dark pubescence, not quite so long as the proboscis. *Antennæ* bright reddish yellow, the first two joints paler yellow, with black pubescence, the third joint with the first division wide, the angle representing the tooth on the middle of upper border, the last four divisions small and narrow. *Forehead* almost parallel, slightly wider anteriorly, more than four times as long as it is wide, yellowish brown, with some blackish hairs, the frontal callus brown, almost lineal, the ocelli prominent. *Thorax* and *scutellum* reddish brown, with traces of grey tomentum and with scattered short yellow hairs; sides and breast the same, with black hairs. *Abdomen* yellowish or reddish on the first three or four segments, then becoming dark brown with the segmentations greyish and the sides yellowish; the brown colour appears more or less on the paler segments; pubescence chiefly black and unnoticeable, some yellow hairs fringing the posterior borders of the last segments; underside yellowish, dark at apex. *Legs* reddish yellow, with black pubescence. *Wings* tinged most deeply on anterior part; stigma brown, veins yellowish, with a short appendix, not always present.

The male is darker, the *palpi* with long black hairs, conical in shape, the face with some long hairs. *Eyes* distinctly pubescent, the hairs reddish. *Thorax* blackish (perhaps discoloured). *Abdomen* with the first segment black. *Legs* with the femora blackish.

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Silvius frontalis, ♀, sp. n.

Type (♀) and another from Palmerston, N. Australia. In German Ent. Museum Collection.

A species rather similar in general appearance to *Silvius australis*, sp. n., but easily distinguished by the different shape of forehead and by the yellowish palpi and legs.

Length 9-9½ mm.

Face covered with greyish tomentum, a few dark hairs in centre and white hairs on cheeks. Beard white. *Palpi* yellowish, with black pubescence, long, cylindrical, curved. *Antennæ* reddish, the first two joints paler, with black hairs, the third dark at apex, with an obtuse angle at base of first division, which is large. *Forehead* same colour as face, parallel, about four times as long as it is broad; the frontal callus dark brown, shining, almost square, filling up the entire width of forehead, produced posteriorly or with an irregular border, from which proceeds a narrow spindle-shaped prolongation not quite reaching the ocelli. *Eyes* bare, with two distinct stripes. *Thorax* reddish brown, with four grey tomentose stripes; pubescence on these stripes whitish, elsewhere brown. Breast reddish, with grey tomentum and white and black hairs intermixed. *Scutellum* reddish, with traces of grey tomentum; a few long brown hairs are visible and some short white hairs. *Abdomen* reddish brown, the posterior borders of segments grey, tomentose; pubescence black and rather abundant, at sides on the grey bands silvery white; underside the same, the grey bands narrower. *Legs* yellowish, the femora darker, reddish brown, with white pubescence, which is also largely present on the tibiae; elsewhere it is black. *Wings* clear, stigma yellow, veins darker yellow.

Silvius indistinctus, ♀, sp. n.

Type (female) and another in Brit. Mus. Coll. from Adelaide River, N. Australia.

Three females in Berlin Museum Collection from Palmerston, N. Australia.

A dull reddish-brown species; legs and antennæ the same colour. Abdomen with traces of lighter-coloured segmentations.

Length of type 12 mm., others 9-13 mm.

Face reddish yellow, covered with grey tomentum; some brownish hairs on cheeks. Beard dirty white in colour. *Palpi* long and slender, only slightly stouter at base, ending in a rounded point, two-thirds the length of the proboscis,

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Silvius australis, ♀, sp. n.

Type (female) and a series of females from Stannary Hills, N. Queensland, circa 3000 ft. (*Dr. T. L. Bancroft*), and a series of females in German Ent. Museum from Kuranda and Cairns, N. Queensland.

A small brown species, the abdomen with narrow grey bands; antennæ dull reddish. Legs blackish. Wings hyaline.

Length 9 mm.

Face covered with grey tomentum, a few white hairs on cheeks. Beard white. *Palpi* long, cylindrical, more than half the length of proboscis, slightly curved, reddish brown or blackish. *Antennæ* dull reddish, darker at apex, the first two joints with black hairs, the first division of third joint large, with an obtuse angle in place of tooth. *Forehead* same colour as face, broader anteriorly than at vertex, so that its length is only about double the width, measuring from the widest part above antennæ. Frontal callus brownish black, large, an elongated club-shape, the lower end reaching the ocelli and ending in a short point. *Eyes* bare. *Thorax* brown, with two distinct grey stripes, sides also grey. Breast greyish. *Scutellum* brown, with grey tomentum. *Abdomen* brown or blackish brown, the posterior borders of segments covered with grey tomentum, the pubescence dark on the brown, white on the tomentose borders; underside almost wholly covered with grey tomentum, the apex blackish. *Legs* blackish. *Wings* hyaline, no appendix, veins and stigma brown.

This species must be nearly allied to *Silvius silvester* (Bergroth), but in the description no mention is made of the forehead and the antennæ are described as blackish and the abdomen with yellow-haired bands. The type came from Central Queensland.

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Mr. Marshall informs me that this species has been found at Cape York by Dr. MacGillivray.

Silvius notatus, ♀, sp. n.

Type (female) from Kalamunda, S.W. Australia, 850 ft., March 1914 (*R. E. Turner*), 1914, 258.

A badly preserved female from Mallee District, Victoria, in Mr. French's Coll. is probably a specimen of this species.

A black species, with four small white-haired spots on the abdomen, subcallus shining, forehead fairly broad. Palpi slender, with truncated tips, as in several species from Australia.

Length 13 mm.

Face covered with grey tomentum and with rather thick brown hairs on each side bordering the cheeks and a few in the centre. *Palpi* reddish yellow, wider at base and concave; the long slender point is longer than the basal half; pubescence consists of short black hairs, which are also present at the tip. Beard dirty white. *Antennæ* reddish brown, the first two joints with black hairs, the third with its basal division broad, showing a very slight angle, the last four joints very small. Subcallus protuberant, reddish brown and shining. *Forehead* slightly narrower anteriorly, about four times as long as it is broad, the ocelli very distinct, with grey tomentum round them, pubescence on forehead black. *Thorax* blackish, with grey tomentum, forming four stripes; sides reddish, with brownish hairs and white ones below on the breast, on dorsum with blackish-brown hairs. *Scutellum* same as thorax, with a fringe of chiefly white hairs. *Abdomen* blackish, covered with some grey tomentum, and with white hairs at sides; the four spots are situated on the third, fourth, and fifth segments in the middle of each segment, with their base resting on the posterior border, being in shape short, triangular; there are traces of one on the second segment; all the segmentations with white hairs; elsewhere the pubescence is blackish. *Legs* obscurely reddish yellow, the femora blackish, with white hairs; pubescence otherwise black. *Wings* clear, veins brown.

CHRYSOPS, Meigen.

Nouvelle Classification, p. 23 (1800).

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One new species is now described.

Chrysops australis, ♀, sp. n.

Type (female) and another from Herberton, Queensland, 3700 ft. (*Dodd*), in German Ent. Museum.

Type (male) and others from Kuranda and Herberton in Mr. Wainwright's Coll., by the same collector.

A species with the usual dark brown band on wing, divided by a clear, distinct, narrow band from the pale brown apex. Abdomen brownish, with a pale yellow band on the second segment and a median yellow short stripe.

Length 10 mm.

Face honey-yellow, covered with grey tomentum, bare and shining in the centre. *Palpi* reddish yellow. *Antennæ* long and slender, the first two joints honey-yellow, with some black pubescence, about equal in length, the third equal in length to the two joints combined, stouter, the first division as long as the four succeeding ones, which are equal in size; the colour of this third joint is rather a darker shade than the others, and some very fine pubescence is apparent. *Forehead* black, with grey tomentum; the frontal spot is represented by a large brownish tubercle, not reaching the eyes; forehead broad; ocelli distinct. *Eyes* bare. *Thorax* reddish brown, shoulders with golden-yellow pubescence, which is continued in an oblique stripe on the breast; there is a tuft of similar hairs at base of wings. *Scutellum* same colour as thorax. *Abdomen* blackish brown, more reddish brown towards the apex; the dark colour on the second segment is represented as a half-circle, deeply indented on its posterior border by the median yellowish spot, all the anterior half of the segment and its sides being pale yellow or whitish; on the third and fourth segments the median spots are long and narrow; underside with the base of abdomen pale yellow. *Legs* reddish yellow, with black pubescence, the tarsi pale yellow, tibiæ a little incrassate. *Wings* with the fore border and the transverse band brown, and the whole apex paler brown, divided from the band by a white narrow band running across from the base of the fork of the third vein.

Male identical. *Palpi* with long brown hairs. *Eyes* contiguous, the large facets pale brass-colour, with two dark spots and a curved dark band on the outer posterior border of each eye, the small facets brown. *Thorax* and *scutellum*

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A species with the usual dark brown band on wing, divided by a clear, distinct, narrow band from the pale brown apex. Abdomen brownish, with a pale yellow band on the second segment and a median yellow short stripe.

Length 10 mm.

Face honey-yellow, covered with grey tomentum, bare and shining in the centre. *Palpi* reddish yellow. *Antennæ* long and slender, the first two joints honey-yellow, with some black pubescence, about equal in length, the third equal in length to the two joints combined, stouter, the first division as long as the four succeeding ones, which are equal in size; the colour of this third joint is rather a darker shade than the others, and some very fine pubescence is apparent. *Forehead* black, with grey tomentum; the frontal spot is represented by a large brownish tubercle, not reaching the eyes; forehead broad; ocelli distinct. *Eyes* bare. *Thorax* reddish brown, shoulders with golden-yellow pubescence, which is continued in an oblique stripe on the breast; there is a tuft of similar hairs at base of wings. *Scutellum* same colour as thorax. *Abdomen* blackish brown, more reddish brown towards the apex; the dark colour on the second segment is represented as a half-circle, deeply indented on its posterior border by the median yellowish spot, all the anterior half of the segment and its sides being pale yellow or whitish; on the third and fourth segments the median spots are long and narrow; underside with the base of abdomen pale yellow. *Legs* reddish yellow, with black pubescence, the tarsi pale yellow, tibiæ a little incrassate. *Wings* with the fore border and the transverse band brown, and the whole apex paler brown, divided from the band by a white narrow band running across from the base of the fork of the third vein.

Male identical. *Palpi* with long brown hairs. *Eyes* contiguous, the large facets pale brass-colour, with two dark spots and a curved dark band on the outer posterior border of each eye, the small facets brown. *Thorax* and *scutellum*

lighter in colour. *Abdomen* with the first segment more yellowish, and with hardly a trace of the blackish-brown band on posterior border; the dark colour on the second segment does not join in the centre, but is represented as a narrow black stripe on each side of the yellow spot, with the apex converging towards the centre.

Ectenopsis vulpecula, ♂ ♀, Wied. Ausszweifel. Ins. i. p. 195 (*Chrysops*) (1828); Macq. Dipt. Exot. i. p. 116 (1838); Loew, Dipt. Südafrik. i. p. 15 (1860); Ricardo, Ann. & Mag. Nat. Hist. (7) viii. p. 297 (1901).

Pangonia angusta, ♂, Macq. Dipt. Exot., Suppl. ii. p. 27 (1847).

Corizoneura angusta, ♀, Bigot, Mém. Soc. Zool. de France, v. p. 617 (1892).

Corizoneura rubiginosa, ♂, Bigot, *l. c.* p. 617.

Types of *Pangonia angusta* (three males), Macq, in the Verrall Coll., from New South Wales in very poor condition.

Type of *Corizoneura angusta* (female), Bigot, in the same Coll., from Australia.

Type of *Corizoneura rubiginosa* (male), Bigot, from Australia, in same Coll.

A series of females from Stannary Hills, N. Queensland (Dr. T. L. Bancroft), 1909. 145, in Brit. Mus. Coll.

One female from Kuranda, N. Queensland, in the German Ent. Museum.

Two males from Kuranda and Herberton, N. Queensland (Dodd), in Mr. Wainwright's Coll.

Wiedemann described this species under *Chrysops*, but Macquart formed the genus *Ectenopsis* for it, considering that the prolongation of the face was its most striking characteristic. Loew remarks that Macquart had probably not seen the species, the type of which, described from an unknown locality, was in the Berlin Museum; and Loew considered the creation of a new genus unnecessary. A long series of the females of the species being now in the Brit. Mus. Coll. I have been able to establish the identity of Bigot's two types with it, and find that the antennæ have the third joint with *eight divisions*, which will necessitate removing it to the first division of the Pangoniinæ, and precludes it being kept in the genus *Chrysops*. It must evidently be kept as a separate genus, reverting to Macquart's name.

The generic characteristics are the form of the *antennæ*, as above stated, the shape of the *face*, which is convex and short, the *forehead* being long and concave and broad; the proboscis is short, the *palpi* small, cylindrical. *Eyes* bare.

lighter in colour. *Abdomen* with the first segment more yellowish, and with hardly a trace of the blackish-brown band on posterior border; the dark colour on the second segment does not join in the centre, but is represented as a narrow black stripe on each side of the yellow spot, with the apex converging towards the centre.

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Pangonia angusta, ♂, Macq. Dipt. Exot., Suppl. ii p. 27 (1847).

Corizoneura angusta, ♀, Bigot, Mém. Soc. Zool. de France, v. p. 617 (1892).

Corizoneura rubiginosa, ♂, Bigot, *l. c.* p. 617.

Types of *Pangonia angusta* (three males), Macq, in the Verrall Coll., from New South Wales in very poor condition.

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The generic characteristics are the form of the *antennæ*, as above stated, the shape of the *face*, which is convex and short, the *forehead* being long and concave and broad; the proboscis is short, the *palpi* small, cylindrical. *Eyes* bare.

Abdomen long and narrow. *Wings* rather large, with the first posterior cell not at all narrowed at border.

A slender reddish-yellow species; the antennæ black at apex. Legs black and yellow. Wings clear.

Length 11 mm.; proboscis $1\frac{1}{2}$ mm.

Female. *Face* and *forehead* raw-sienna in colour; the *antennæ* situated beyond the middle of the head, nearer the mouth; the face is short, convex, separated by a deep furrow from the small cheeks, quite bare; a few very short hairs are visible just below the antennæ. *Palpi* the same colour as face, but becoming darker towards the apex, with short black pubescence. Beard almost nil, represented by a few short reddish hairs. *Antennæ* same colour as face, the first two joints with some black hairs, the first joint short, the second only half its length, the third with the last four divisions deep black; the basal division is almost square, nearly as long as the second joint, the next three divisions small, the last four rather larger. *Forehead* wide, with no callus, wider anteriorly, about half as long as the length; between the subcallus and the vertex the forehead is concave; ocelli distinct. *Eyes* quite bare. *Thorax*, *scutellum*, and *abdomen* raw-sienna in colour, bare, a few same-coloured hairs on abdomen. Halteres black. *Wings* rather large, clear; appendix present, stigma blackish, veins black. *Legs* rather variable in colour, black, the femora usually yellowish, darker at their apices, all coxæ yellowish.

Bigot's type (*angusta*) has the legs entirely yellow, the tarsi a little darker. Wiedemann describes the legs as all black.

Male very similar, more hairy. *Palpi* almost the same in shape, with longer and more numerous black hairs; *face* also covered with brown hairs. *Eyes* with larger facets covering most of their surface, only leaving the lower third with small ones. *Thorax* rather darker in colour, with brown long pubescence; *scutellum* with yellowish hairs. *Abdomen* with long yellowish hairs at sides, somewhat darker at the apex. *Legs* with the femora yellowish or often largely black. In Bigot's types (*angusta*) they appear almost wholly reddish yellow. His type *rubiginosa* is in very bad condition, and the three male types of *angusta* are little better.

CENOPROSOPON, gen. nov.

Formed for two females from Blue Mts., New South Wales, in Mr. Wainwright's Coll.

The most striking characteristic in this species is the

Abdomen long and narrow. *Wings* rather large, with the first posterior cell not at all narrowed at border.

A slender reddish-yellow species; the antennæ black at apex. Legs black and yellow. Wings clear.

Length 11 mm.; proboscis $1\frac{1}{2}$ mm.

Female. *Face* and *forehead* raw-sienna in colour; the *antennæ* situated beyond the middle of the head, nearer the mouth; the face is short, convex, separated by a deep furrow from the small cheeks, quite bare; a few very short hairs are visible just below the antennæ. *Palpi* the same colour as face, but becoming darker towards the apex, with short black pubescence. Beard almost nil, represented by a few short reddish hairs. *Antennæ* same colour as face, the first two joints with some black hairs, the first joint short, the second only half its length, the third with the last four divisions deep black; the basal division is almost square, nearly as long as the second joint, the next three divisions small, the last four rather larger. *Forehead* wide, with no callus, wider anteriorly, about half as long as the length; between the subcallus and the vertex the forehead is concave; ocelli distinct. *Eyes* quite bare. *Thorax*, *scutellum*, and *abdomen* raw-sienna in colour, bare, a few same-coloured hairs on abdomen. Halteres black. *Wings* rather large, clear; appendix present, stigma blackish, veins black. *Legs* rather variable in colour, black, the femora usually yellowish, darker at their apices, all coxæ yellowish.

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The most striking characteristic in this species is the

enormously large *palpi* in the type; unfortunately only the small first joint remains in the other female. The *antennæ* are small, the third joint with eight divisions, the first one small, stout, the others very small; the first two joints have heavy black pubescence. The *forehead* is very wide and concave, narrower at the vertex. *Ocelli* very distinct. *Spines* on hind tibiae small, but very stout. *Wings* large, with all posterior cells open.

Cenoprosopon wainwrighti, ♀, sp. n.

A large fulvous-coloured species, with wings tinged brown.

Length $16\frac{1}{2}$ mm., the other female 15 mm.; proboscis 2 mm.

Face amber-brown, with yellowish tomentum, the large tubercular upper part devoid of tomentum, with short black hairs and a bunch of them on the upper part of cheeks. Beard pale yellow. *Palpi* amber-brown, the first joint paler, short, stout; the second joint very large, flattened, club-shaped, curved, narrow at the extreme base, becoming wider; the whole surface on outer side covered with short black hairs, the inner side almost bare, the proboscis about a third longer than these palpi. *Antennæ* situated on the protuberant subcallus, the first two joints the colour of the face, the third joint redder, dusky at its extreme apex; the first joint short and stout, covered with stout black hairs, the second one the same, about half its length; the third joint with a ring-like first division, the second short and stout, the remaining ones narrower and very small. *Forehead* very wide, a third narrower at the apex, hollow in the centre, same colour as the face, devoid of pubescence. *Ocelli* large. *Eyes* small, with greenish reflections, bare. Head small in comparison with the size of insect. *Thorax* Sudan-brown, with two yellowish tomentose lateral stripes and a very narrow indistinct median one; the yellowish tomentum appears at sides and on the posterior half of dorsum, and wholly covers the scutellum; the pubescence consists of very short black hairs, on the scutellum of longer yellowish hairs. *Abdomen* amber-brown, but not very uniform in colour; an indistinct dark median stripe is visible, pubescence almost nil, a few short white hairs on the segmentations. *Legs* raw-sienna, the tibiae somewhat paler; coxæ with some short black hairs; pubescence elsewhere yellowish. *Wings* large, brownish, becoming paler on the posterior border; veins reddish yellow; appendix rudi-

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mentary ; all posterior cells open, but the fourth is narrower at the border.

DEMOPLATUS, gen. nov.

Formed for the male type named *Corizoneura trichocera* by Bigot ; females are now to hand which are identical with this male. There are also three male specimens of evidently another species of this genus, which are described below ; and there are two males of different species apparently from Brisbane and Mackay in the Brit. Mus. Coli. which I do not propose to describe.

The species are distinguished in the females by the club-shaped *palpi* and by the broad concave *forehead*, in the males by the very hairy *face*, *palpi*, and *antennæ*, in both by the rather flat *abdomen* and large *wings*. *Ocelli* large and distinct. Spines on hind tibiæ. *Antennæ* with at least eight divisions on the third joint, having a short first joint, the second one only half its length, the third very slender, composed of a small almost square first division, the following ones very small and narrower. The females may be distinguished by the smaller club-shaped *palpi* and by the *face*, which is very much produced under the *antennæ*, almost reaching the upper border of the first antennal joint.

The genus is allied to *Ectenopsis* in the shape of the forehead in the female ; but is at once distinguished from it by the very much larger *palpi*, and in the male by the larger first antennal joint, which with the second joint is very much more hairy.

Demoplatus trichocerus, ♂ ♀, Bigot, Mém. Soc. Zool. de France, v. p. 616 (1892) [*Corizoneura*].

Type (female) from Herberton, Queensland (*Dodd*), in the German Ent. Museum, and another female in the same collection from Kuranda, Queensland.

Type (male) from Australia in the Verrall Coll. and two other males from Kuranda and Herberton in German Ent. Museum.

A reddish-brown species, with the cross-veins of the pale brown wings shaded dark brown. Legs honey-yellow or reddish yellow.

Length, females 12–13 mm., males 12–13 mm. ; proboscis hardly more than 1 mm.

Female.—*Face* Sudan-brown, very short, tuberculous in centre, some black bristly hairs on the outer borders, in the groove dividing the face from the cheeks. Beard consists of

mentary ; all posterior cells open, but the fourth is narrower at the border.

DEMOPLATUS, gen. nov.

Formed for the male type named *Corizoneura trichocera* by Bigot ; females are now to hand which are identical with this male. There are also three male specimens of evidently another species of this genus, which are described below ; and there are two males of different species apparently from Brisbane and Mackay in the Brit. Mus. Coli. which I do not propose to describe.

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A reddish-brown species, with the cross-veins of the pale brown wings shaded dark brown. Legs honey-yellow or reddish yellow.

Length, females 12–13 mm., males 12–13 mm. ; proboscis hardly more than 1 mm.

Female.—*Face* Sudan-brown, very short, tuberculous in centre, some black bristly hairs on the outer borders, in the groove dividing the face from the cheeks. Beard consists of

fairly long fine brownish-black hairs. Proboscis short. *Palpi* large, almost as long as proboscis, the first joint short, the second long, club-shaped, with black hairs, thick towards their apices, in colour similar to the face. *Antennæ* somewhat paler and more yellow, the first two joints with long black hairs, the third with short ones on every division on outer side, the last divisions dusky in colour. *Forehead* very wide and concave, the most striking characteristic of the genus, same colour as face, with a very few black hairs, slightly narrower at the vertex. *Ocelli* large and distinct. *Eyes* bare. *Thorax* and *abdomen* Sudan-brown, the abdomen rather darker. *Thorax* with a round waxy-yellow spot on its anterior angles, covered with some reddish-yellow tomentum and a very few black hairs; traces of rufous-coloured hairs on the posterior border. *Scutellum* more yellow in colour. *Abdomen* flat, with some appressed reddish-yellow pubescence. *Legs* antique-brown, some long black hairs on coxæ and femora, elsewhere chiefly reddish yellow. *Wings* large, longer than the abdomen, pale brown, tinged yellow on the fore border; all cross-veins shaded; appendix, if present, short; all posterior cells widely open.

Male identical in colour. *Face* not tuberculous nor very short, long brownish-black hairs below antennæ on centre, covered with greyish tomentum. Beard composed of sparse white hairs. *Palpi* slender, cylindrical, the first joint short, the second long, with dense short pubescence, reddish yellow, not so long as the proboscis. The frontal triangle is very small, the *eyes* joining almost their whole length. *Ocelli* large, on a protuberant tubercle. *Wings* with the appendix more marked than in females. Genital organs prominent beyond the sixth segment.

Demoplatus australis, ♂, sp. n.

Male (type) from Katoomba, Blue Mts., 3400 ft., New South Wales (*Dodd*), 1912, and another, both in German Ent. Museum; also another male from the same place in Mr. Wainwright's Coll.

A dark-coloured species, with brownish wings, darkest on the fore border. Legs and antennæ reddish yellow.

Length 12 mm.; proboscis $1\frac{1}{2}$ mm.

Face brownish, with greyish-yellow tomentum, somewhat produced below the antennæ, forming a large tubercle covered with long black hairs, which are also present on the cheeks. Beard silver-white. *Palpi* a little more than half the length of the proboscis, reddish-yellow, the first joint

fairly long fine brownish-black hairs. Proboscis short. *Palpi* large, almost as long as proboscis, the first joint short, the second long, club-shaped, with black hairs, thick towards their apices, in colour similar to the face. *Antennæ* somewhat paler and more yellow, the first two joints with long black hairs, the third with short ones on every division on outer side, the last divisions dusky in colour. *Forehead* very wide and concave, the most striking characteristic of the genus, same colour as face, with a very few black hairs, slightly narrower at the vertex. *Ocelli* large and distinct. *Eyes* bare. *Thorax* and *abdomen* Sudan-brown, the abdomen rather darker. *Thorax* with a round waxy-yellow spot on its anterior angles, covered with some reddish-yellow tomentum and a very few black hairs; traces of rufous-coloured hairs on the posterior border. *Scutellum* more yellow in colour. *Abdomen* flat, with some appressed reddish-yellow pubescence. *Legs* antique-brown, some long black hairs on coxæ and femora, elsewhere chiefly reddish yellow. *Wings* large, longer than the abdomen, pale brown, tinged yellow on the fore border; all cross-veins shaded; appendix, if present, short; all posterior cells widely open.

Male identical in colour. *Face* not tuberculous nor very short, long brownish-black hairs below antennæ on centre, covered with greyish tomentum. Beard composed of sparse white hairs. *Palpi* slender, cylindrical, the first joint short, the second long, with dense short pubescence, reddish yellow, not so long as the proboscis. The frontal triangle is very small, the *eyes* joining almost their whole length. *Ocelli* large, on a protuberant tubercle. *Wings* with the appendix more marked than in females. Genital organs prominent beyond the sixth segment.

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A dark-coloured species, with brownish wings, darkest on the fore border. Legs and antennæ reddish yellow.

Length 12 mm.; proboscis $1\frac{1}{2}$ mm.

Face brownish, with greyish-yellow tomentum, somewhat produced below the antennæ, forming a large tubercle covered with long black hairs, which are also present on the cheeks. Beard silver-white. *Palpi* a little more than half the length of the proboscis, reddish-yellow, the first joint

covered with grey tomentum; pubescence on the second joint consists of short black hairs on the upper and lower sides and of longer ones on the first joint, which is short, stout; the second joint long, cylindrical. *Antennæ* situated on a slightly raised tubercle, the same colour as palpi, dusky at apex, the first two joints with long black hairs, the third with only a few short black ones on apical joints; the third joint has the first division small, ring-like, the second larger, almost square, the remaining narrower and small. Frontal triangle small. *Eyes* bare; ocelli large. *Thorax* blackish, but covered with olive-coloured tomentum and with fairly thick pale fulvous hairs; sides with the same hairs; breast with white hairs. *Scutellum* identical, the hairs on posterior border white. *Abdomen* narrow, flat, the genital organs protruding, reddish, the abdomen itself blackish, with very narrow reddish segmentations on some of the segments; pubescence apparently sparse, consisting of long white hairs on the posterior borders of segments; underside more reddish in colour, with white pubescence. *Legs* much the same colour as the antennæ, Mars-yellow; coxæ blackish, with olive-coloured tomentum and long white hairs; pubescence on femora reddish, with long white hairs on underside, on tibiæ and tarsi chiefly black. *Wings* large, longer than abdomen, the brown colour most intense on the anterior half, fading away on the posterior border; veins brown, small appendix present, all posterior cells widely open.

Mr. Marshall gives me the following additional localities for this species, the collectors being Dr. J. Burton Cleland and Dr. E. W. Ferguson:—2 ♂, Milson Island, Hawkesbury River, 31. iii. 15, 11. iv. 15. Taken resting on bracken. Eyes of a rather dull coppery red.

PSEUDOTABANUS, gen. nov.

Formed for two species from Queensland.

Ocelli and spurs on hind tibiæ present. *Antennæ* with eight divisions on the third joint, which is broad and *Tabanus*-like at the base, with the three divisions after the first basal one indistinct; the last four divisions small and distinct, the first joint very short, hardly more than half the length of the first four divisions of the third joint; the second smaller, cup-shaped. *Palpi* two-thirds the length of the proboscis, *Tabanus*-like. *Wings* with all posterior cells open; no appendix.

The species resemble in general appearance species of the genus *Tabanus*. Proboscis short.

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The species resemble in general appearance species of the genus *Tabanus*. Proboscis short.

Pseudotabanus distinctus, sp. n.

Type (female) in Brit. Mus. Coll. from Inkermann, near Townsville, N. Queensland (*H. Stalker*), 1908, 151.

Black; the abdomen with yellowish bands. Antennæ and legs black. Wings grey, tinged deep brown on the fore border and more widely so at the apex on the submarginal cell.

Length 14 mm.; proboscis 2 mm.

Face covered with grey tomentum and with some silvery-white short hairs in the centre and on the cheeks. Beard same colour. *Palpi* rather long, two-thirds the length of proboscis, blackish, a little stout at base, ending in a long point. *Antennæ* same colour, the third joint with an angle at base on its first division, the first two joints with a few dark hairs. *Forehead* more yellowish in colour than the face, parallel, about five times as long as it is broad; the frontal callus long, almost lineal, slightly enlarged anteriorly, reaching the ocelli. *Eyes* bare. *Thorax* black, with two lineal grey tomentose stripes, posteriorly, with a narrow grey border which extends up the sides as far as the suture. Shoulders above this latter are yellowish. Breast and sides blackish, with grey tomentum and white hairs. *Scutellum* black, with a few white hairs. *Abdomen* blackish brown, the posterior borders of all segments brownish yellow fading into grey; there is also a narrow band on anterior border of second segment; the bands are widest on the first two segments; pubescence on bands yellowish white, elsewhere black; underside same as dorsum. *Legs* wholly blackish brown. *Wings* with no appendix, fore border narrowly yellow as far as the stigma, which is brown.

Pseudotabanus queenslandi, sp. n.

Type (female) from Kuranda, Queensland (*F. P. Dodâ*), 1914, 381, in Brit. Mus. Coll.

Another female from Endeavour River, Queensland, in Mr. French's Coll.

A blackish species, with median grey spots and bands on abdomen.

Length $14\frac{1}{2}$ mm.

Face covered with ashy-grey tomentum, convex in the centre, divided from the cheeks by a deep furrow; pubescence on face scanty, consisting of a few short white or yellow hairs. Beard white. *Palpi* same shape as those of *Pseudotabanus distinctus*, black, two-thirds the length of the

Pseudotabanus distinctus, sp. n.

Type (female) in Brit. Mus. Coll. from Inkermann, near Townsville, N. Queensland (*H. Stalker*), 1908, 151.

Black; the abdomen with yellowish bands. Antennæ and legs black. Wings grey, tinged deep brown on the fore border and more widely so at the apex on the submarginal cell.

Length 14 mm.; proboscis 2 mm.

Face covered with grey tomentum and with some silvery-white short hairs in the centre and on the cheeks. Beard same colour. *Palpi* rather long, two-thirds the length of proboscis, blackish, a little stout at base, ending in a long point. *Antennæ* same colour, the third joint with an angle at base on its first division, the first two joints with a few dark hairs. *Forehead* more yellowish in colour than the face, parallel, about five times as long as it is broad; the frontal callus long, almost lineal, slightly enlarged anteriorly, reaching the ocelli. *Eyes* bare. *Thorax* black, with two lineal grey tomentose stripes, posteriorly, with a narrow grey border which extends up the sides as far as the suture. Shoulders above this latter are yellowish. Breast and sides blackish, with grey tomentum and white hairs. *Scutellum* black, with a few white hairs. *Abdomen* blackish brown, the posterior borders of all segments brownish yellow fading into grey; there is also a narrow band on anterior border of second segment; the bands are widest on the first two segments; pubescence on bands yellowish white, elsewhere black; underside same as dorsum. *Legs* wholly blackish brown. *Wings* with no appendix, fore border narrowly yellow as far as the stigma, which is brown.

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Length $14\frac{1}{2}$ mm.

Face covered with ashy-grey tomentum, convex in the centre, divided from the cheeks by a deep furrow; pubescence on face scanty, consisting of a few short white or yellow hairs. Beard white. *Palpi* same shape as those of *Pseudotabanus distinctus*, black, two-thirds the length of the

proboscis. *Antennæ* black, the first two joints with black hairs; the third joint in type is imperfect; in the other female the basal divisions are fairly distinct, the basal division broad, forming a slight angle. *Eyes* bare. *Forehead* parallel, same colour as face, about five times as long as it is broad; the frontal callus blackish, very narrow, continued nearly to the vertex, ending in a fine point. *Ocelli* distinct. *Thorax* blackish, with two distinct grey tomentose broad stripes, with appressed white and fulvous pubescence, longer at sides and on posterior border. *Scutellum* covered with grey tomentum, leaving a dark brown spot in the middle, with fairly long white pubescence. *Abdomen* blackish, the median spots triangular, large on the second, third, and fourth segments, their apices not quite reaching the anterior borders; a narrow band of white hairs is continued from each spot to the side, where it broadens out into a wider spot continued up the side of segment; sides with long white hairs; pubescence on the grey spots white, elsewhere black; underside with white-haired bands, matching those on the dorsum. *Legs* black, the pubescence on the coxæ and underside of femora white, elsewhere black. *Wings* clear, tinged faintly with brown on the fore border, more widely so towards the apex; veins yellowish brown.

The species bears a great resemblance in the shape of the frontal callus and forehead and in the markings of the wings to *Pseudotabanus distinctus*.

PSEUDOPANGONIA, gen. nov.

This genus is very distinct from any other genus known to me in the Pangoninæ in its general appearance and in the form of the antennæ, which have three joints as usual, but the third joint has only four divisions.

Antennæ are small, situated on a rather protuberant tubercle; the first two joints short and stout, the second shorter than the first; the third twice as long, composed of four divisions, the first one being stout, conical, the remaining three very narrow, each about the length of the basal joint. *Palpi* are small and narrow. Proboscis short. *Face* short, nearly horizontal. *Forehead* narrow and furrowed. *Ocelli* prominent on vertex. *Abdomen* large and flat. Pubescence very scanty. Hind tibiæ with one stout spine. *Wings* large, longer than the abdomen; all cells except the anal one widely open; no appendix.

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Pseudopangonia australis, sp. n.

Type (female) from Burpengary, S. Queensland (Dr. T. L. Baucroft), 1904, 93, in Brit. Mus. Coll.; and another female from Richmond River, New South Wales, in Mr. Froggatt's Coll.

A curious-looking humpbacked large fly; the thorax a pinkish buff, the abdomen ochraceous tawny, with a brownish median stripe and apex. Wings tinged brown.

Length 20-23 mm.; proboscis 1 mm.

Face tawny, covered with grey tomentum, devoid of hairs. Beard white. Palpi reddish yellow, with black hairs, two-thirds the length of proboscis. Antennæ situated on a slightly elevated tubercle, dull reddish yellow; the first two joints with black hairs, the third with a few at sides of small joints and at apex. Forehead same colour as face, with a furrow on each side and no defined frontal callus, parallel, about six times as long as it is broad. Thorax large, with buff-coloured hairs on dorsum and at sides; breast covered with grey tomentum and with white and brown hairs. Scutellum same as thorax. Abdomen with a brown median stripe and brown at sides, the last four segments brownish with grey tomentum; pubescence short, not noticeable, chiefly pale or yellow on the yellowish parts and brown elsewhere; underside brownish covered with grey tomentum. Legs reddish brown, with black pubescence. Wings longer than body, large, tinged brown, chiefly on the fore border; veins yellowish; stigma not distinct; no appendix; all posterior cells widely open.

TABANINÆ.

TABANUS, Linn.

Group XI.

Species with pubescence on the eyes (*Therioplectes*).

This group appears to be very well represented in this region, and is a very difficult one as regards the separation of nearly allied species, especially those in the group containing *Tabanus circumulatus* and *Tabanus antecedens*, Walker. Mr. Arthur White has kindly allowed me to examine his specimens of this group from Tasmania, some of which appear to be new species, and he has a good series of *Tabanus gentilis*, Erichson.

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The following species I have not been able to identify:—

Tabanus nigriventris, Macq., from Sydney Island, the type of which is apparently lost, probably belongs to this group, as the author speaks of the eyes being tomentose.

Tabanus brevivitta, ♂, Walker; this type is not to be found in the Brit. Mus. Coll., and should be deleted from the list.

Tabanus macrophthalmus, ♂, Schiner.

Tabanus gregarius and *Tabanus esculans*, Erichson, both from Tasmania, cannot be identified from the descriptions; they may be synonyms of *Tabanus circumdatus*, Walker.

Tabanus bifasciatus, Macq. Hist. Nat. Dipt. i. p. 201 (1834), is not known to me; the type is apparently lost. It is described as having the first posterior cell of the wing closed, a characteristic not met with in any of the described species of *Tabanus* from this region, which inclines one to think it might be a species of the Pangoninæ division. It is described as black, with small white indistinct spots on the abdomen. Wings brownish, the veins shaded, the centre of the cells nearly hyaline.

Length 20 mm. (10 lines).

No mention is made of the eyes, which are probably bare.

Tabanus microdonta, ♀, Macq. Dipt. Exot., Suppl. ii. p. 33 (1846).

Type (female) from Tasmania, and another female from New Holland (M. Serville Coll.).

This type in the late Mr. Verrall's Coll. is in fair preservation, as is the other female; they are distinguished by the frontal callus, which is large, with no lineal extension, but extends as a broad stripe nearly three-quarters of the length of the forehead, ending in an obtuse point. There is also no appendix present on the wings in either female. A blackish species, with some reddish colour on the abdomen.

Length 13–15 mm.

Face covered with brownish-grey tomentum and with brown hairs. Beard brown, a few white hairs below. Palpi small and not very stout, about the same width throughout, ending in a short point, dirty yellow in colour, with rather numerous black hairs. Antennæ blackish, but the first two joints and the base of third reddish; the latter has hardly any angle representing a tooth on its upper side, the first two joints with black hairs. Forehead same colour as face,

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parallel, about five times as long as it is broad; the frontal callus is pitchy brown in colour, furrowed in the centre, not reaching the eyes; black hairs at sides of forehead. *Eyes* distinctly pubescent. *Thorax* blackish. *Abdomen* blackish, the sides of the first three segments tawny, the segmentations narrowly pale; underside tawny. *Legs* dull reddish, dusker at tips. *Wings* clear, veins brown, stigma yellowish brown.

Tabanus regis georgii, Macq. Dipt. Exot. i. p. 132 (1838).

The type (female) from Port du Roi George, New Holland, was seen by me in the Paris Museum a few years ago, in bad preservation; however, I identified four females in the Brit. Mus. Coll. as this species, and feel confident they are this species, which may possibly be identical with *Tabanus postponens*, Walker; the only difference in these from the Walker type is the shape of the frontal callus, which is much broader, though not reaching the eyes, with hardly any lineal extension in three of the specimens; the colour is a dark brown, the femora are rather dusky at their base. The stripes on the thorax are more distinct and appear as six in number, the specimens being in good preservation. They come from Inkerman, near Townsville, N. Queensland (*W. Stalker*), 1908, 151, and S. Queensland (*Dr. T. L. Bancroft*), 1908, 72.

Tabanus oculatus, ♀, Ricardo.

Tabanus pusillus, Macq. Dipt. Exot., Suppl. v. p. 49 (1854), nomen bis lectum.

Type (female) in the late Mr. Verrall's Coll. from Sydney, New South Wales.

Two females in Brit. Mus. Coll. from S. Queensland (*Dr. T. L. Bancroft*), 1908.

The type, which is in bad preservation, was described by Macquart as having the eyes naked, evidently an oversight on his part, as the pubescence on the eyes of the type is distinct, though very sparse and very indistinct in one of the fresh females. It is very similar in general appearance to my new species *Tabanus germanicus* from N. Australia, in which the eyes are quite bare.

A small brown species, with inconspicuous yellow hairs on the abdomen; the antennæ and legs reddish yellow. Wings clear, with an appendix.

Length 11 mm.

Face covered with grey tomentum, ground-colour yellowish;

parallel, about five times as long as it is broad; the frontal callus is pitchy brown in colour, furrowed in the centre, not reaching the eyes; black hairs at sides of forehead. *Eyes* distinctly pubescent. *Thorax* blackish. *Abdomen* blackish, the sides of the first three segments tawny, the segmentations narrowly pale; underside tawny. *Legs* dull reddish, dusker at tips. *Wings* clear, veins brown, stigma yellowish brown.

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Length 11 mm.

Face covered with grey tomentum, ground-colour yellowish;

hairs on face white. *Palpi* cream-coloured, slender, ending in a long point; pubescence chiefly white, a few black hairs on upper border. *Antennæ* reddish, the first two joints yellower with black pubescence, the third rather short, broad at base, with very slight tooth. *Subcallus* yellowish, covered with grey tomentum. *Forehead* broad, parallel, about three times as long as it is broad anteriorly, covered with brownish-yellow tomentum and with some few black hairs. *Frontal callus* shining chestnut-colour, pear-shaped, not reaching the eyes, with a short lineal extension. *Eyes* with slight pubescence. *Thorax* olivaceous black, covered with some grey tomentum and with recumbent, short, golden, inconspicuous pubescence; the longer hairs at sides brownish. *Scutellum* identical. *Abdomen* darker than thorax, covered with isabella-coloured tomentum, and with short golden hairs on the posterior borders of segments, the first two segments reddish at the sides; underside lighter in colour, covered with greyish tomentum. *Legs* cinnamon-coloured, the femora darker, with grey tomentum and white hairs; pubescence otherwise chiefly black, apical tarsal joints blackish. *Wings* clear, stigma pale yellow, veins darker, appendix present.

Mr. Marshall gives me the following additional localities, the collectors being Dr. J. Burton Cleland and Dr. E. W. Ferguson:—four females, i. & ii. 1915; one female, 5. xii. 14, Milson Island, Hawkesbury River; one female, Sydney, 20. xii. 14. *Eyes* of a dull brown colour in life.

Tabanus vetustus, ♀, Walker, List Dipt. i. p. 179 (1848).

Type (female) from Swan River, West Australia.

Another female from Encounter Bay, S. Australia, 1907 (*Dr. J. B. Cleland*), with the following note:—"Bites severely"; and another female from unknown locality.

A medium-sized pale-coloured species, not unlike the European *Tabanus fulvus* in general appearance. *Forehead* with no callus. *Tibiæ* reddish yellow. *Abdomen* covered with short grey pubescence.

Length 15 mm.

Face covered with ashy-grey tomentum and with some short white pubescence. *Palpi* pale chamois-coloured, stout for more than half their length, ending in a slender point, pubescence scanty, pale-coloured. *Antennæ* reddish yellow, the last four divisions of the third joint black; third joint wide at base, with the angle representing the tooth not quite halfway up on the outer border, the first two joints paler in

hairs on face white. *Palpi* cream-coloured, slender, ending in a long point; pubescence chiefly white, a few black hairs on upper border. *Antennæ* reddish, the first two joints yellower with black pubescence, the third rather short, broad at base, with very slight tooth. *Subcallus* yellowish, covered with grey tomentum. *Forehead* broad, parallel, about three times as long as it is broad anteriorly, covered with brownish-yellow tomentum and with some few black hairs. *Frontal callus* shining chestnut-colour, pear-shaped, not reaching the eyes, with a short lineal extension. *Eyes* with slight pubescence. *Thorax* olivaceous black, covered with some grey tomentum and with recumbent, short, golden, inconspicuous pubescence; the longer hairs at sides brownish. *Scutellum* identical. *Abdomen* darker than thorax, covered with isabella-coloured tomentum, and with short golden hairs on the posterior borders of segments, the first two segments reddish at the sides; underside lighter in colour, covered with greyish tomentum. *Legs* cinnamon-coloured, the femora darker, with grey tomentum and white hairs; pubescence otherwise chiefly black, apical tarsal joints blackish. *Wings* clear, stigma pale yellow, veins darker, appendix present.

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colour, with a few black hairs only. *Forehead* parallel, about four times as long as it is broad; when denuded a dark callus appears, but in the type there is hardly a trace of one. *Eyes* hairy. *Thorax* blackish, covered with fulvous or grey pubescence. *Scutellum* identical. *Abdomen* with a blackish ground-colour, covered with greyish tomentum and with short yellowish-grey pubescence, and some longer black hairs interspersed; the posterior borders of segments reddish yellow, and the first two segments the same colour at the sides; underside very similar. *Legs* reddish yellow; coxæ black, covered with grey tomentum and with white hairs; femora blackish, reddish yellow at extreme base and at apex, covered with grey tomentum and white hairs; pubescence elsewhere yellowish, with some few black hairs. *Wings* clear, veins yellow, appendix present.

Three females from Bellerive, Tasmania, Feb. 13, 1914, in Mr. White's Coll., are identical, but the third joint of antennæ is wholly black.

Tabanus imperfectus, ♀, Walker, List Dipt. i. p. 179 (1848).

Type (female) from New South Wales, and two females from Mangalore, Tasmania; presented by Mr. Arthur White.

A blackish species, smaller than *Tabanus antecedens*, Walker, and the frontal callus is very much larger, taking up the whole of the anterior half of the forehead, with no lineal extension.

Length of type 10 mm.; the other females are somewhat smaller.

Face covered with grey tomentum and with long white hairs, some black hairs intermixed. *Palpi* pale dull yellow, very hairy, a little stout at base, with long black hairs above and white ones below. *Antennæ* in type destroyed, in the other females they are blackish; the first two joints with some black hairs, the third with a small angle to represent the tooth. *Eyes* hairy. *Forehead* broader anteriorly than at the vertex, about a third as wide (anteriorly) as it is long. Frontal callus reddish brown, extending from eye to eye and reaching more than halfway down the forehead; at its posterior end it becomes narrower, ending in a very obtuse point; some black hairs are present on sides of forehead, which is covered posteriorly with grey tomentum. *Thorax* black; in the fresh specimens two narrow grey stripes are apparent, very short, not reaching the median suture; shoulders and the sides greyish, pubescence short, black, longer on

colour, with a few black hairs only. *Forehead* parallel, about four times as long as it is broad; when denuded a dark callus appears, but in the type there is hardly a trace of one. *Eyes* hairy. *Thorax* blackish, covered with fulvous or grey pubescence. *Scutellum* identical. *Abdomen* with a blackish ground-colour, covered with greyish tomentum and with short yellowish-grey pubescence, and some longer black hairs interspersed; the posterior borders of segments reddish yellow, and the first two segments the same colour at the sides; underside very similar. *Legs* reddish yellow; coxæ black, covered with grey tomentum and with white hairs; femora blackish, reddish yellow at extreme base and at apex, covered with grey tomentum and white hairs; pubescence elsewhere yellowish, with some few black hairs. *Wings* clear, veins yellow, appendix present.

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A blackish species, smaller than *Tabanus antecedens*, Walker, and the frontal callus is very much larger, taking up the whole of the anterior half of the forehead, with no lineal extension.

Length of type 10 mm.; the other females are somewhat smaller.

Face covered with grey tomentum and with long white hairs, some black hairs intermixed. *Palpi* pale dull yellow, very hairy, a little stout at base, with long black hairs above and white ones below. *Antennæ* in type destroyed, in the other females they are blackish; the first two joints with some black hairs, the third with a small angle to represent the tooth. *Eyes* hairy. *Forehead* broader anteriorly than at the vertex, about a third as wide (anteriorly) as it is long. Frontal callus reddish brown, extending from eye to eye and reaching more than halfway down the forehead; at its posterior end it becomes narrower, ending in a very obtuse point; some black hairs are present on sides of forehead, which is covered posteriorly with grey tomentum. *Thorax* black; in the fresh specimens two narrow grey stripes are apparent, very short, not reaching the median suture; shoulders and the sides greyish, pubescence short, black, longer on

shoulders; the posterior borders of thorax appear grey tomentose. *Scutellum* blackish, with traces of white hairs on its borders. *Abdomen* blackish, all the segmentations grey tomentose, with white hairs; traces of white median spots appear on the type and are distinct in the fresh specimens on the second, third, and fourth segments; pubescence elsewhere on dorsum black; sides of the first two segments are inclined to be reddish in colour. *Legs* blackish, femora with grey tomentum, the tibiæ yellowish, as is also the first joint of the tarsi; pubescence black, with long and short hairs on the sides of the tibiæ. *Wings* clear, an appendix present, veins and stigma blackish.

Tabanus antecedens, ♀, Walker, List Dipt. i. p. 178 (1848);
♂, List Dipt. v. p. 253 (1854).

Type (female) from Van Diemen's Land, and a series of females from Mts. of Victoria (*C. Freuch*, 190); one from Tasmania, presented by Mr. A. White; and others from Dandenong Ranges, Victoria (French Coll.).

A blackish species larger than *Tabanus imperfectus*, Wlk., with pale slender palpi, a hairy face, dark antennæ, and forehead parallel or almost so, with a large square frontal callus. Abdomen with grey segmentations and often indistinct, grey-haired, triangular median spots.

Length 12-13 mm.

Face covered with ashy-grey tomentum and with black hairs, with which are intermixed a few shorter white hairs; lower part of face pale reddish. *Palpi* pale reddish yellow, covered with grey tomentum on basal half and with rather long black hairs, intermixed with white hairs on basal half, which is stout, the apical half slender, ending in a point. Beard composed chiefly of white hairs. *Antennæ* blackish, the first two reddish yellow with black hairs, the third rather broad at base, with a distinct angle representing the tooth. *Forehead* parallel or slightly narrower at the vertex, the subcallus usually covered with greyish tomentum, often denuded and appearing reddish; the frontal callus is large, reaching the eyes, almost square, shining reddish brown or black, with a short extension; some rather long black pubescence is present on the forehead, which is covered with greyish tomentum; at the vertex a tuft of long black hairs is a characteristic of this species. *Eyes* with thick pubescence. *Thorax* blackish, with four lineal slaty-grey tomentose stripes, not always very distinct; shoulders pale reddish; pubescence on thorax long, black, with some interspersed pale short

shoulders; the posterior borders of thorax appear grey tomentose. *Scutellum* blackish, with traces of white hairs on its borders. *Abdomen* blackish, all the segmentations grey tomentose, with white hairs; traces of white median spots appear on the type and are distinct in the fresh specimens on the second, third, and fourth segments; pubescence elsewhere on dorsum black; sides of the first two segments are inclined to be reddish in colour. *Legs* blackish, femora with grey tomentum, the tibiæ yellowish, as is also the first joint of the tarsi; pubescence black, with long and short hairs on the sides of the tibiæ. *Wings* clear, an appendix present, veins and stigma blackish.

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hairs. *Scutellum* blackish, with a slaty-grey outer border. *Abdomen* brownish black, with grey tomentum, becoming slate-grey on the segmentations; pubescence consists of rather close short black hairs; in a few specimens from Victoria the abdomen is large, reddish brown, instead of brownish black, in the type and in others the extreme posterior lateral borders of the fifth, sixth, and seventh segments are reddish; underside very similar to dorsum, but almost bare. *Legs* blackish, the tibiæ reddish, becoming blackish at the apex on the fore tibiæ; pubescence black, on the outer borders of the tibiæ the hairs are uneven in length. *Wings* clear, with blackish veins, stigma yellowish, appendix present.

Mr. White informs me that this is the commonest species in Tasmania.

The male type of *Tabanus antecedens* comes from New Holland (*Hunter*), and the antennæ are imperfect; whether it is really the male of the above is doubtful.

Tabanus circumdatus, ♀, Walker, List Dipt. i. p. 185 (1848).

Tabanus nepos, ♀, Walker, List Dipt. i. p. 181 (1848).

Tabanus abstersus, ♀, Walker, Dipt. Saund. p. 58 (1850).

Tabanus brevidentatus, ♀, Macq. Dipt. Exot., Suppl. v. p. 23 (1854).

Tabanus hebes, ♀, Walker, List Dipt. i. p. 159 (1848); Surcouf et Ricardo, Étude Monographique des Tabanides d'Afrique, p. 214 (1909).

The type of *circumdatus* and *nepos* are from unknown localities, but priority is given to the former, as it is a better-preserved more typical specimen of the species; *hebes* was erroneously described as from S. Africa, *abstersus* is from New South Wales (Saunders Coll.), *brevidentatus* from Australia.

The type of *hebes* and two other females are very reddish and paler in colouring than is usual, but this is probably chiefly accounted for by the denudation and bad preservation of the specimens; these remarks also apply to *nepos*.

This is probably the species mentioned by Mr. Froggatt in "March Flies" (Science Bulletin, no. 3, Sept. 1911, p. 6) as *Tabanus brevidentatus*, "the common small greyish-brown March fly found in the scrub or bush around Sydney." The types of the Macquart species are in the late Mr. Verrall's Coll.

There are specimens in the Brit. Mus. Coll. from Eidsvoll and Burnett River, Queensland (*Dr. T. L. Bancroft*); New South Wales (Saunders Coll.); National Park, New South

hairs. *Scutellum* blackish, with a slaty-grey outer border. *Abdomen* brownish black, with grey tomentum, becoming slate-grey on the segmentations; pubescence consists of rather close short black hairs; in a few specimens from Victoria the abdomen is large, reddish brown, instead of brownish black, in the type and in others the extreme posterior lateral borders of the fifth, sixth, and seventh segments are reddish; underside very similar to dorsum, but almost bare. *Legs* blackish, the tibiæ reddish, becoming blackish at the apex on the fore tibiæ; pubescence black, on the outer borders of the tibiæ the hairs are uneven in length. *Wings* clear, with blackish veins, stigma yellowish, appendix present.

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The type of *hebes* and two other females are very reddish and paler in colouring than is usual, but this is probably chiefly accounted for by the denudation and bad preservation of the specimens; these remarks also apply to *nepos*.

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There are specimens in the Brit. Mus. Coll. from Eidsvoll and Burnett River, Queensland (*Dr. T. L. Bancroft*); New South Wales (Saunders Coll.); National Park, New South

Wales; and Cleveland, Tasmania (Dr. J. L. Purdy); with the following note attached to this last specimen:—

“March Flies. Very common in Tasmania, especially in sheep districts in the Midlands. Bite sharp, like the prick of a pin, and especially severe on children, causing swelling and slight inflammation. Nuisance has recently become so severe as to interfere with school discipline. The least touch kills the flies, and after school occasionally a shovelful can be swept up.”—Note by Dr. J. S. Purdy, Chief Health Officer, Hobart.

Tabanus edentulus, Macq., is possibly identical or very nearly related to this species. *Tabanus acutipalpis*, Macq., appears very similar, but is larger in size. Both types are in the Paris Museum. *Tabanus fraterculus*, Macq., is said by the author to be related to *T. edentulus* (the type is lost) from Tasmania. A rather variable species in colouring, it may be distinguished from *Tabanus imperfectus* and *Tabanus antecedens* by its larger size and more reddish colour of the abdomen. The forehead is very slightly broader anteriorly than it is at the vertex, contrary to the usual rule.

Length 13–15 mm.

Face covered with greyish tomentum and with short white hairs, a few brown ones usually present on the centre. Beard white, a few brown hairs intermixed. Palpi yellowish, long and slender, stouter on basal half, ending in a long point, very hairy; the basal half with some grey tomentum and with white hairs, on the apical half they are short and black. Antennæ reddish, the third joint dusky, the first two joints with black hairs, the third joint wholly dusky or dull reddish at base; it is rather broad at the base with a small tooth. Forehead and subcallus with grey tomentum, the latter often much denuded, appearing reddish or brown; the frontal callus almost square, reaching the eyes, with a lineal extension, usually reddish brown or reddish yellow. Eyes distinctly pubescent in fresh specimens. Thorax and scutellum blackish with grey tomentum and yellowish recumbent pubescence, intermixed with longer grey hairs on anterior part of thorax, and posteriorly and on outer border of scutellum; in denuded specimens two narrow grey stripes appear; shoulders and sides reddish. Abdomen dull reddish yellow with grey tomentose segmentations and small median triangular grey spots; in many specimens, especially those from Queensland, the colour is more reddish brown; pubescence short, black, with white hairs on the segmentations and at sides below black hairs; underside reddish yellow, nearly bare, with very short white hairs on

Wales; and Cleveland, Tasmania (Dr. J. L. Purdy); with the following note attached to this last specimen:—

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the segmentations. *Legs* blackish, the femora with grey tomentum: the tibiæ reddish; pubescence black, femora with some long white hairs, and the tibiæ, especially the middle pair, with some short white hairs. *Wings* clear, appendix present, veins reddish yellow; stigma very indistinct, pale yellow.

The male I have not been able to identify with certainty.

Tabanus postponens, ♀, Walker, List Dipt. i. p. 179 (1848).

Type (female) from New Holland.

A small species with reddish-yellow antennæ and legs, a broad forehead, widest anteriorly with a small oblong frontal callus. Abdomen reddish brown with wide grey tomentose bands and median spots.

Length 12 mm.

Face covered with yellowish-grey tomentum, a few dark hairs in centre. Beard yellowish white. *Palpi* pale orange-yellow, slender, stout on more than half their length, ending in a long fine point, with rather thick short white pubescence. *Antennæ* Mars-yellow, the first two divisions with some black hairs, the third division incomplete, stout at base with an indistinct tooth. Subcallus same colour as antennæ, shining, but probably from denudation of greyish tomentum. *Forehead* a little wider anteriorly than at vertex, covered with grey tomentum, about three times as long as it is broad anteriorly; frontal callus small, oblong, not reaching eyes, chestnut-brown, with a short lineal extension. *Eyes* distinctly hairy. *Thorax* blackish brown covered with greyish tomentum which leaves three dark stripes visible, some pale fulvous appressed pubescence on dorsum and some longer dark hairs at sides. *Scutellum* same colour. *Abdomen* reddish brown, the grey tomentose bands are present on every segment except the last one, about half the width of the segment, extending in the middle to an obtuse triangular spot, largest on the second, third, and fourth segments, pubescence on these bands yellowish. *Legs* Mars-yellow, dusky on apices of tarsal joints, pubescence on femora white, elsewhere black. *Wings* clear, veins and stigma yellowish brown; small appendix present.

Tabanus basalis, ♀, Walker, List Dipt. i. p. 182 (1848).

Type (female) from New Holland, and another female from Tanworth, New S. Wales, 12. 12. 92, from Froggatt Coll.

the segmentations. *Legs* blackish, the femora with grey tomentum: the tibiæ reddish; pubescence black, femora with some long white hairs, and the tibiæ, especially the middle pair, with some short white hairs. *Wings* clear, appendix present, veins reddish yellow; stigma very indistinct, pale yellow.

The male I have not been able to identify with certainty.

Tabanus postponens, ♀, Walker, List Dipt. i. p. 179 (1848).

Type (female) from New Holland.

A small species with reddish-yellow antennæ and legs, a broad forehead, widest anteriorly with a small oblong frontal callus. Abdomen reddish brown with wide grey tomentose bands and median spots.

Length 12 mm.

Face covered with yellowish-grey tomentum, a few dark hairs in centre. Beard yellowish white. *Palpi* pale orange-yellow, slender, stout on more than half their length, ending in a long fine point, with rather thick short white pubescence. *Antennæ* Mars-yellow, the first two divisions with some black hairs, the third division incomplete, stout at base with an indistinct tooth. Subcallus same colour as antennæ, shining, but probably from denudation of greyish tomentum. *Forehead* a little wider anteriorly than at vertex, covered with grey tomentum, about three times as long as it is broad anteriorly; frontal callus small, oblong, not reaching eyes, chestnut-brown, with a short lineal extension. *Eyes* distinctly hairy. *Thorax* blackish brown covered with greyish tomentum which leaves three dark stripes visible, some pale fulvous appressed pubescence on dorsum and some longer dark hairs at sides. *Scutellum* same colour. *Abdomen* reddish brown, the grey tomentose bands are present on every segment except the last one, about half the width of the segment, extending in the middle to an obtuse triangular spot, largest on the second, third, and fourth segments, pubescence on these bands yellowish. *Legs* Mars-yellow, dusky on apices of tarsal joints, pubescence on femora white, elsewhere black. *Wings* clear, veins and stigma yellowish brown; small appendix present.

Tabanus basalis, ♀, Walker, List Dipt. i. p. 182 (1848).

Type (female) from New Holland, and another female from Tanworth, New S. Wales, 12. 12. 92, from Froggatt Coll.

A small reddish-yellow species with a dull yellowish-grey abdominal median stripe on a black ground-colour. Antennæ and legs reddish yellow. Forehead broader anteriorly.

Length $9\frac{1}{2}$ mm., other female $10\frac{1}{2}$.

Face covered with greyish tomentum and with some brown and white hairs. Beard white. *Palpi* chamois-coloured, hairy, slender, only slightly stouter on basal half, ending in a point; pubescence yellowish white at base. *Antennæ* Mars-yellow, the first two joints with black hairs, the third joint with very small angle representing tooth at base. *Forehead* covered with greyish tomentum, distinctly broader anteriorly, barely three times as long as it is broad anteriorly; frontal callus large, nearly square, not reaching the eyes, with a short thick extension. *Eyes* very slightly pubescent. *Thorax* blackish with grey tomentum, shoulders reddish, dorsum with some appressed fulvous hairs. *Scutellum* identical. *Abdomen* ochraceous-orange; ground-colour of median stripe and the last segments black, the pale colour covered with some grey tomentum; the median spots forming a short nearly continuous stripe from the second to the sixth segment, large, triangular-shaped, hardly apparent in type owing to denudation; underside wholly pale in colour. *Legs* Mars-yellow, tarsi dusky-coloured; pubescence on femora white, elsewhere black; femora with greyish tomentum. *Wings* clear, veins pale brown, stigma yellowish; appendix present.

Tabanus umbripennis, ♀, Ricardo.

Tabanus cinereus, Walker, List Dipt. i. p. 167 (1848), nomen bis lectum.

Type (female) from W. Australia.

A black species covered with grey tomentum. Antennæ, palpi, and legs blackish. Recognised at once by the wings, which have the cross-veins and longitudinal ones shaded with brown.

Length 16 mm.

Face blackish covered with grey tomentum and with some short white hairs. Beard chiefly brown, some white hairs below. *Palpi* appear blackish covered with dense grey tomentum and with short black pubescence, on the inside they are reddish yellow. *Antennæ* black, stout, the first two joints with short black hairs, the third broad at base with a distinct tooth, apical joints are broken off. *Forehead* very broad, parallel, barely three times as long as it is broad, black covered with grey tomentum; frontal callus pitchy

A small reddish-yellow species with a dull yellowish-grey abdominal median stripe on a black ground-colour. Antennæ and legs reddish yellow. Forehead broader anteriorly.

Length $9\frac{1}{2}$ mm., other female $10\frac{1}{2}$.

Face covered with greyish tomentum and with some brown and white hairs. Beard white. *Palpi* chamois-coloured, hairy, slender, only slightly stouter on basal half, ending in a point; pubescence yellowish white at base. *Antennæ* Mars-yellow, the first two joints with black hairs, the third joint with very small angle representing tooth at base. *Forehead* covered with greyish tomentum, distinctly broader anteriorly, barely three times as long as it is broad anteriorly; frontal callus large, nearly square, not reaching the eyes, with a short thick extension. *Eyes* very slightly pubescent. *Thorax* blackish with grey tomentum, shoulders reddish, dorsum with some appressed fulvous hairs. *Scutellum* identical. *Abdomen* ochraceous-orange; ground-colour of median stripe and the last segments black, the pale colour covered with some grey tomentum; the median spots forming a short nearly continuous stripe from the second to the sixth segment, large, triangular-shaped, hardly apparent in type owing to denudation; underside wholly pale in colour. *Legs* Mars-yellow, tarsi dusky-coloured; pubescence on femora white, elsewhere black; femora with greyish tomentum. *Wings* clear, veins pale brown, stigma yellowish; appendix present.

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brown, pear-shaped, with short lineal extension. *Eyes* with traces of pubescence. *Thorax* black, with some grey tomentum on dorsum; shoulders obscurely reddish with long dark pubescence. *Scutellum* same colour. *Abdomen* similar in colouring, the grey tomentum thick, especially at base; there are traces of white pubescence on the segmentations laterally, with black hairs at apex and on the sides. *Legs* with dark pubescence. *Wings* grey, on fore border yellowish brown, at base pale brown; all the veins shaded with dark brown, which appears as blotches round all the cross-veins; stigma brown, veins brown; appendix present.

Judging from the figure of the wing of *Tabanus funebris*, Macq., this is a different species.

Tabanus dubiosa, ♀, sp. n.

Type, a female, and another from Burnett River District, Queensland (*Dr. T. L. Bancroft*), 1912, 242. One female from Katoomba, Blue Mts., New S. Wales, in Mr. Wainwright's Coll.

A small black species with well-marked grey spots and segmentations on abdomen. Antennæ, palpi, and legs black.

Length 13 mm.

Face covered with greyish tomentum and with some brown hairs, among which are a few white ones. Beard white. *Palpi* black, some grey tomentum on the basal half, which is stout, ending rather abruptly in a long point; pubescence black, a few white hairs on basal half. Antennæ dusky brown, a dull reddish brown on the basal division of the third joint; pubescence on the first two joints black, the tooth of third only represented by an angle. *Forehead* broader anteriorly than at vertex, about three times as long as it is broad, covered with greyish tomentum; the frontal callus blackish, shining, large, almost reaching the eyes, oblong, the lineal extension ending in a point. *Thorax* blackish covered with grey tomentum, and with short dense grey pubescence, so disposed that the black ground-work appears as stripes, sides with white hairs; shoulders reddish with brown hairs, pubescence on breast grey. *Scutellum* blackish with long white hairs on posterior border. *Abdomen* black, the posterior border of each segment except the first one with a narrow grey tomentose band, extended in the middle as a median spot; the black pubescence on dorsum short and dense, on the bands white; underside similar, but

brown, pear-shaped, with short lineal extension. *Eyes* with traces of pubescence. *Thorax* black, with some grey tomentum on dorsum; shoulders obscurely reddish with long dark pubescence. *Scutellum* same colour. *Abdomen* similar in colouring, the grey tomentum thick, especially at base; there are traces of white pubescence on the segmentations laterally, with black hairs at apex and on the sides. *Legs* with dark pubescence. *Wings* grey, on fore border yellowish brown, at base pale brown; all the veins shaded with dark brown, which appears as blotches round all the cross-veins; stigma brown, veins brown; appendix present.

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A small black species with well-marked grey spots and segmentations on abdomen. Antennæ, palpi, and legs black.

Length 13 mm.

Face covered with greyish tomentum and with some brown hairs, among which are a few white ones. Beard white. *Palpi* black, some grey tomentum on the basal half, which is stout, ending rather abruptly in a long point; pubescence black, a few white hairs on basal half. Antennæ dusky brown, a dull reddish brown on the basal division of the third joint; pubescence on the first two joints black, the tooth of third only represented by an angle. *Forehead* broader anteriorly than at vertex, about three times as long as it is broad, covered with greyish tomentum; the frontal callus blackish, shining, large, almost reaching the eyes, oblong, the lineal extension ending in a point. *Thorax* blackish covered with grey tomentum, and with short dense grey pubescence, so disposed that the black ground-work appears as stripes, sides with white hairs; shoulders reddish with brown hairs, pubescence on breast grey. *Scutellum* blackish with long white hairs on posterior border. *Abdomen* black, the posterior border of each segment except the first one with a narrow grey tomentose band, extended in the middle as a median spot; the black pubescence on dorsum short and dense, on the bands white; underside similar, but

no median spots are visible. *Legs* black, knees reddish ; the coxæ covered with grey tomentum and with long white hairs ; pubescence elsewhere black. *Wings* clear, stigma very pale yellow, veins brown ; short appendix present.

Tabanus froggatti, sp. n.

Type (female) from south coast, New South Wales, 5. 3. 1910, in Mr. Froggatt's Coll.

A black species with very narrow pale segmentations and some median spots on abdomen, distinguished by the greater narrowness of the forehead at the vertex than anteriorly, as is usual, and by the long hairs on face and palpi. Wings shaded on the cross-veins.

Length 13 mm.

Face covered with grey tomentum and with long black hairs in the centre and on cheeks at sides ; a few long white hairs appear on the foveæ and continue round the base of face above the beard, which is black with a few white hairs intermixed below. *Palpi* dull reddish yellow, clothed with long black hairs, thickest and longest at the base, which is a little stout, the palpus ending in a long point, so that the palpi are long and slender. *Antennæ* black, the first joint cylindrical, the second round, not half the length of the first ; both with some grey tomentum, and with long black hairs ; the third joint short with no distinct tooth, the first division broad, once and a half longer than the last divisions, which are very narrow. Subcallus shining brown, but covered with ashy-grey tomentum almost entirely. *Forehead* twice as wide anteriorly as it is at vertex ; the frontal callus shining brown as the subcallus, taking up the whole width of forehead and furnished with a short stout extension, the remainder of the forehead covered with yellowish-grey tomentum and with long black pubescence ; vertex and hind part of head with similar pubescence. *Eyes* thickly covered with pale hairs. *Thorax* shining black, with some short, white, appressed pubescence and long black hairs at shoulders and on sides. *Scutellum* similar. *Abdomen* shining blackish brown, the segmentations very narrowly grey tomentose and with short white pubescence ; a grey tomentose median spot is visible on the second segment and a smaller one on the third, dorsum with black pubescence and some yellowish-grey tomentum ; underside more chocolate-brown, and devoid of pubescence. *Legs* blackish, the knees and basal third of fore tibiæ yellowish red, the knees

no median spots are visible. *Legs* black, knees reddish ; the coxæ covered with grey tomentum and with long white hairs ; pubescence elsewhere black. *Wings* clear, stigma very pale yellow, veins brown ; short appendix present.

Tabanus froggatti, sp. n.

Type (female) from south coast, New South Wales, 5. 3. 1910, in Mr. Froggatt's Coll.

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and two-thirds of the middle tibiæ the same colour; pubescence on legs black; fore coxæ covered with yellowish-grey tomentum and with long black hairs. *Wings* clear, the veins brown, the cross-veins all shaded narrowly with brown, stigma yellowish brown; appendix present.

Tabanus gentilis, Erichson, Archiv. f. Naturgesch. viii. p. 271 (1842).

This species by reason of its spotted wings is more easily identified than the other two species by the same author, and has been found by Mr. Arthur White in Tasmania, who has kindly given a specimen to the Brit. Mus. Coll.

My new species, *Tabanus froggatti*, is nearly related to *T. gentilis*, both species having the same-shaped forehead, quite a distinctive feature in them. This species is distinguished from my species by its reddish antennæ and legs; the palpi are also lighter in colour, and the hairs on the face and the beard are more largely white than black. The chief difference is in the wings, which in this species are more distinctly spotted, all the cross-veins on the upper part of wing having dark spots round them.

XXXIII.—Notes on *Fossorial Hymenoptera*.—XVII. On new *Ethiopian Species*. By ROWLAND E. TURNER, F.Z.S., F.E.S.

Family Crabronidæ.

Subfamily STIZINÆ.

Sphæcius milleri, sp. n.

♀. Nigra; capite, antennis, pronoto, mesonoto lateribus, tegulis, scutello pedibusque ferrugineis; clypeo, segmentoque primo secundoque dorsalibus macula magna utrinque flavis, segmenti secundi maculis strigam nigram transversam includentibus; alis flavo-hyalinis, venis ferrugineis.

Long. 25 mm.

♀. Clypeus with a large, flattened, rather indistinctly margined, subtriangular area in front; eyes converging towards the clypeus, posterior ocelli rather more than twice as far from each other as from the eyes. Antennæ inserted as far from each other as from the eyes, the scape short, about half as long as the second joint of the flagellum,

and two-thirds of the middle tibiæ the same colour; pubescence on legs black; fore coxæ covered with yellowish-grey tomentum and with long black hairs. *Wings* clear, the veins brown, the cross-veins all shaded narrowly with brown, stigma yellowish brown; appendix present.

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